

EXHIBIT C

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**IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

GOOGLE LLC,

Plaintiff,

v.

SONOS, INC.,

Defendant.

CASE NO. 3:20-cv-06754-WHA

Related to CASE NO. 3:21-cv-07559-WHA

**REPLY EXPERT REPORT OF SAMRAT BHATTACHARJEE REGARDING NON-
INFRINGEMENT OF U.S. PATENT NO. 10,779,033 AND OTHER ISSUES**

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playback queue” limitations in the same way. Dr. Schmidt has not provided any valid reason why the accused application would satisfy the claim language, while the prior art would not.

45. Third, Dr. Schmidt and Sonos accuse the YouTube Music application of satisfying the “remote playback queue” limitations when they play back a cloud-hosted album playlist (e.g., AC/DC Back in Black) and a list of service-recommended songs. I showed that the Tungsten/NexusQ system is also able to play back a cloud-hosted album playlist (e.g., AC/DC Back in Black) and a list of service-recommended songs (e.g., a Magic Playlist). Opening ’033 Report, ¶¶ 298, 508-509. Again, I understand that claims are to be interpreted and applied in the same way for both infringement and invalidity. Thus, my opinion is consistent with my Prior Showdown Submissions because it is based on Dr. Schmidt’s infringement positions. Dr. Schmidt has not provided any valid reason why the accused application would satisfy the claim language, while the prior art would not. In short, it is Dr. Schmidt who appears to be advancing inconsistent infringement and invalidity positions for the ’033 patent.

C. The Statements From The Patent Showdown That Dr. Schmidt Identifies Are Not Inconsistent With The Opinions In My Opening ’033 Report

46. Dr. Schmidt identifies a number of statements from the Patent Showdown that he wrongly claims “contradict” the opinions in my Opening ’033 Report. Schmidt Rebuttal Rpt., ¶¶ 299-312. I address these statements below and show that they do not “contradict” my opinions.

1. Statements That The Accused Systems Store The Playback Queue In Only One Place (The Cloud Queue) When Casting

47. Dr. Schmidt identifies the statements below from my Prior Showdown Submissions and opines that I “repeatedly represented to the Court that the existence of a ‘local playback queue’ in a system is mutually exclusive of a ‘remote playback queue’ (or ‘cloud queue’) and vice versa”:

- a. “In the accused YouTube system, the playback queue is not stored on a playback device, such as the playback device. Rather, as already mentioned, it is stored in the Cloud Queue. *See, e.g., supra* ¶ 49. Indeed, the protocol

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ii *Lists of Recommended Videos Received From The YouTube Servers*

76. I showed in my opening report that Sonos claims that the accused YouTube applications satisfy this limitation by playing back a list of service recommended videos provided by the YouTube servers. I also showed that the YouTube Remote prior art also plays back a list of recommended videos provided by the YouTube servers. I understand that claims are to be interpreted the same way for infringement and invalidity. Thus, in my opinion, to the extent the accused YouTube applications are found to satisfy this limitation, so too would the YouTube Remote prior art.

77. Dr. Schmidt responds that a mobile device can be configured to play back only “one playback queue, which is either remote or local (but not both)” and that the “playback queue” that is configured for playback must meet certain requirements. *See supra*, ¶ 13. Dr. Schmidt then opines that when playing back recommended videos the mobile device in the YouTube Remote prior art is configured for playback of a “local playback queue” because that is the queue that allegedly “(i) contain[s] the list of media items that are used for playback by the remote controls; (ii) contain[s] the entire list of media items selected for playback; (iii) [is] not being used merely to process the list of media items for playback; and (iv) [is] the queue[] that ‘runs the show.’” Schmidt Rebuttal Rpt., ¶ 330.

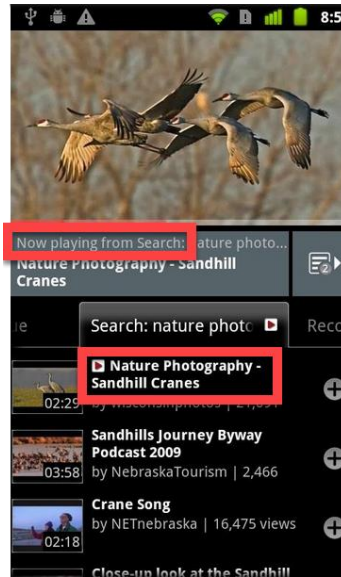
78. First, Dr. Schmidt’s opinion that there can be only one playback queue is inconsistent with his positions on infringement, as I explained above. *See* ¶¶ 22-24.

79. Second, Dr. Schmidt has failed to demonstrate that the YouTube Remote prior art is materially different from the accused YouTube application in its playback of a list of recommended videos received from a YouTube server. Schmidt Rebuttal Rpt., ¶¶ 131-132. The only difference Dr. Schmidt attempts to identify appears to be based on a misunderstanding of how

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the YouTube Remote prior art operates. In particular, Dr. Schmidt asserts that in the YouTube Remote prior art recommended videos cannot be played back without being added to “the local playback queue” on the mobile device using the “+” icon to the right of a recommended video:

In order for any recommended videos to be played back by a remote control, a user would have to add such videos to the local playback queue on the remote control. This is evidenced by the ‘+’ icon that appears next to a recommended video. In the YTR System, playback queues are not auto-populated with recommended videos.



Schmidt Rebuttal Rpt., ¶328. This is inaccurate. Although the “+” icon can be used to add a recommended video to the user’s queue, the list of recommended videos can also be played back without adding them to the user’s queue. For instance, the image on the right shows the YouTube Remote prior art playing back a list of videos provided by the YouTube cloud servers in the “Search” workspace—in other words, without using the “+” icon to add the videos to the user’s queue. *See*

<https://web.archive.org/web/20111014181427/https://market.android.com/details?id=com.google>

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.android.ytremote. Similarly, users could also play back a list of recommended videos in other workspaces.⁸ See strings.xml, line 958 (“now_playing_from” the “Best of YouTube”).

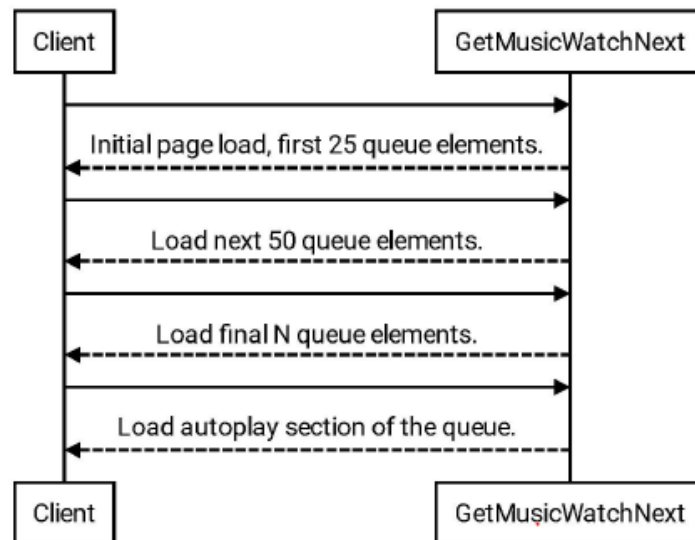
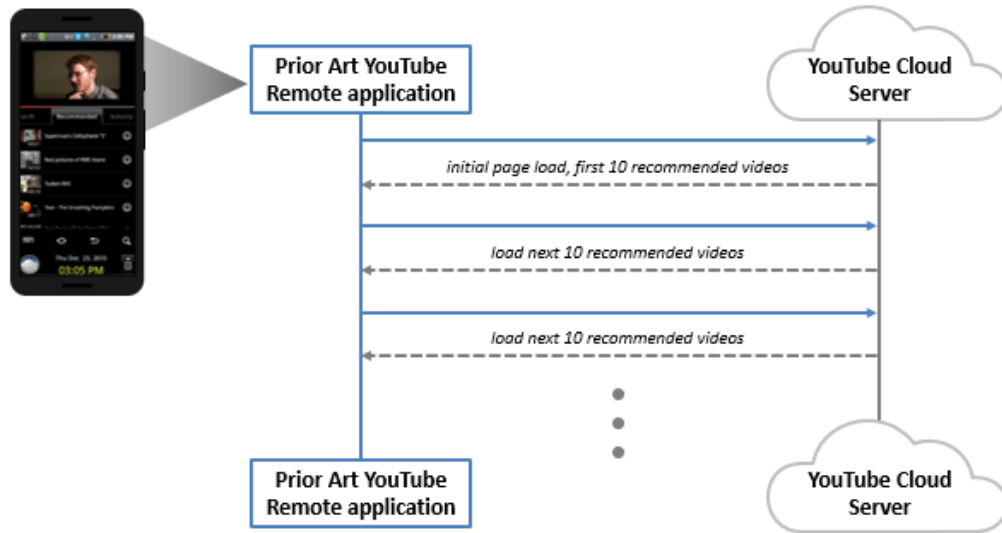
80. The source code for the YouTube Remote prior art similarly confirms that Dr. Schmidt is mistaken. It shows that when a user selected a recommended video for playback, the videos auto-played one after another. See WatchActivity.java⁹, lines 643 (the “createContinuousPlayHandler” calls “moveToNextVideo” to autoplay the next video). The list of recommended videos in the workspace were “paged,” meaning that the YouTube Remote application fetched a list of ten recommended videos at a time. See PagedStationContentService.java, lines 19-23. Once the last recommended video was reached, the mobile device fetched from the server the next ten recommended videos from the YouTube servers (thereby auto-populating the workspace) and continued to autoplay. See WatchActivity.java, lines 903 (moveToNextVideo calls “hasNextPage”).

81. I have illustrated the YouTube Remote prior art’s playback of a list of recommended videos provided by the YouTube servers in the top image below. The image on the bottom is from Dr. Schmidt’s report and Dr. Schmidt opines that it “shows the YouTube cloud infrastructure only sending a portion of the Watch Next queue to the Sender for playback, evidencing the existence of a ‘remote playback queue.’”

⁸ I further note that the accused YouTube applications also include icons next to recommended media items that permit a user to add the media item to a queue, as I showed in my opening report. Accordingly, I do not agree that Dr. Schmidt has identified any differences between the accused and prior art functionality that are material to the claims.

⁹ In 2022-03-22_YTRemoteLeanbackAppsServer07122011/google3/java/com/google/android/apps/ytlounge/src/com/google/android/ytremote/

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Schmidt Rebuttal Rpt., ¶ 589. Dr. Schmidt’s infringement and invalidity positions are inconsistent. As shown above, both the YouTube Remote prior art and the accused YouTube applications were able to load recommended media items in batches. Dr. Schmidt’s contention that this “evidences the existence of a ‘remote playback queue’” in the accused YouTube applications, would also apply to the YouTube Remote prior art. Dr. Schmidt has not identified differences (if any) that are material to the claim language.

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Tungsten [] was demonstrated and distributed at the June 2012 Google I/O conference as ‘Nexus Q.’” Opening ’033 Rpt., ¶ 460.¹⁴ Dr. Schmidt disputes that the Tungsten/NexusQ is prior art under § 102(g).

B. Response To Dr. Schmidt’s Conception Arguments

118. Dr. Schmidt argues that the Tungsten/NexusQ is not prior art under 102(g) because I have allegedly failed to establish conception of certain limitations of the asserted claims. Schmidt Rebuttal Rpt., ¶¶ 553-562. I disagree.

119. First, Dr. Schmidt contends that Google did not show conception of elements of the claim that require “operating in a first mode in which the computing device is configured for playback” because I stated in my opening report that at the May 2011 demonstration of the Project Google used a “Gumby application” that did not play back media. Schmidt Rebuttal Rpt., ¶ 554.

120. However, I showed that by May 2011 Google conceived of the Tungsten/NexusQ system using a smartphone with a music application that was configured to play back a list of media items selected for playback (e.g., a cloud-hosted album) when in a first mode. Opening ’033 Rpt., ¶ 219, 469-470 (discussing Tungsten ’557 Provisional). I also showed that by this date the Tungsten/NexusQ system requirements specified that the Tungsten system would use Google’s existing Music 2 application to play back media in a first mode, and that the ability to play Magic

¹⁴ I included images of the physical Nexus Q devices that I understand were distributed at the June 2012 Google I/O, and were made available for inspection in this case. Opening ’033 Rpt., ¶ 460. Dr. Schmidt criticizes Google for not also making available for inspection a physical exhibit of a “computing device” for the Nexus Q, namely a mobile phone running Google Play Music. However, Dr. Schmidt does not appear to dispute that the commercially released version of the Nexus Q was used with a mobile phone running a version of the Google Play Music, and my report cited to documents and videos demonstrating the relevant functionality of the prior art Google Play Music application (which was also referred to as Music2). In this respect, Dr. Schmidt’s criticism appears to overlook the fact that this lawsuit was filed in September of 2020 (Dkt. No. 1, Complaint), many years after the release of the Nexus Q.

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Playlists was included in the July 14, 2011 capture of the source code. Opening '033 Rpt., ¶ 471, 499. Dr. Schmidt also states that “Magic Playlists” were part of Google’s music application by May 2011. Schmidt Rebuttal Rpt., ¶ 594.

121. Dr. Schmidt attempts to characterize these disclosures as an “assortment of additional prior art” and “disparate teaching” that do not reflect “a conception of a Gumby app of the May 2011 Tungsten.” Schmidt Rebuttal Rpt., ¶555. I disagree. The disclosures are directed to the Tungsten Project that Google ultimately released as the NexusQ—in fact, among the documents Dr. Schmidt characterizes in this way is a May 2011 version of the “Product Spec” for “Tungsten.” Opening '033 Rpt., ¶ 471.

122. Dr. Schmidt also states that he has “seen evidence that Google’s engineers in September 2, 2011 (*nearly 4 months after* the May 2011 Tungsten) were still in the process of implementing functionality that enabled ‘Music2 [app] playing through Tungsten.’” Schmidt Rebuttal Rpt., ¶556. Initially, I understand that Sonos is no longer asserting that it is entitled to an earlier invention date. Thus, this evidence serves as further support for my opinion that prior to Sonos’s alleged December 30, 2011 priority date, Google had conceived of extending the Music2 application for use with the Tungsten/NexusQ prior art. Moreover, that Google was “still in the process of implementing functionality” for the Tungsten/NexusQ prior art does not mean that Google had not conceived of the functionality by that date. Indeed, Sonos has not implemented any product that practices a claim of the '033 patent. Opening '033 Rpt., ¶ 697.

123. Second, Dr. Schmidt contends that Google has not shown conception of limitations reciting a “remote playback queue.” Schmidt Rebuttal Rpt., ¶ 557-558. Dr. Schmidt states that a cloud-hosted album playlist (e.g., AC/DC Back in Black) or a list of server recommended media items (e.g., a Magic Playlist) that have been selected for playback are not a “remote playback

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queue provided by a cloud-based computing system.” However, for purposes of infringement, Dr. Schmidt does not identify any actual remote “playback queue.” Rebuttal ’033 Report, ¶¶ 159-163. Instead, as I already explained, Dr. Schmidt interprets the term “playback queue” broadly to refer to some amorphous “list of media items provided by the YouTube cloud infrastructure for playback” (which he calls a “Watch Next queue”), such as “an album [playlist], user-created playlist, service-provided playlist, etc.” *See supra*, ¶27.

124. I understand that claims are to be interpreted the same way for infringement and invalidity. Thus, to the extent playback of a cloud-hosted album playlist or list of recommended videos in the accused YouTube applications discloses the “remote playback queue” limitations, then playback of cloud-hosted playlists (e.g., album playlists and Magic Playlists) demonstrates conception of the “remote playback queue” limitations. Dr. Schmidt has not shown that there are differences in the way the accused systems and the prior art Tungsten/NexusQ system play back cloud-hosted playlists that are material to the claims.

125. Third, Dr. Schmidt opines that Google has not shown conception of Limitations 1.7 and 12.4, which recite: “wherein the instruction configures the at least one given playback device to (i) communicate with the cloud-based computing system in order to obtain data identifying a next one or more media items that are in the remote playback queue, (ii) use the obtained data to retrieve at least one media item in the remote playback queue from the cloud-based media service; and (iii) play back the retrieved at least one media item.” Schmidt Rebuttal Rpt., ¶ 559.

126. However, in my report I showed in detail that the July 14, 2011 capture of the source code shows that upon transferring playback responsibility of the cloud-hosted playlist of Magic Playlist (which I explained are a “remote playback queue” under Dr. Schmidt’s application of the claim language for purposes of infringement) to a Tungsten playback device, the playback device

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communicates with a cloud-based computing system (by invoking a getRemoteURL function) to obtain data identifying a next one or more media items that are in the remote playback queue (a streaming URL for the next media item in, for example, the album playlist or Magic Playlist), uses the obtained data (the streaming URL) to retrieve at least one media item in the remote playback queue from the cloud-based media service (retrieving the content for the next song in the album playlist or Magic Playlist from the Bandaaid servers), and then plays back the retrieved at least one media item (the next song in the album playlist or Magic Playlist). Opening '033 Rpt., ¶¶ 229.

127. When applying this claim language for purposes of infringement Dr. Schmidt has taken the position that a “Bandaaid URL” is “data identifying a next one or more media items that are in the remote playback queue” that is used to “retrieve at least one media item in the remote playback queue,” as I discussed in connection with Limitation 1.7 of the YouTube Remote prior art. *See supra*, ¶ 102.

128. Dr. Schmidt nevertheless argues that because the NexusQ/Tungsten system stores song_ids for the album playlist or Magic Playlist, the song_ids (not the “Bandaaid URL”) are the “data identifying a next one or more media items that are in the remote playback queue.” Schmidt Rebuttal Rpt., ¶ 654. I disagree.

129. The claim language indicates that the “data identifying a next one or more media items that are in the remote playback queue” must be the data that is used to retrieve the content for a media item. In particular, the claim language recites that the obtained data is used to “retrieve at least one media item in the remote playback queue from the cloud-based media service,” and states that the playback device “play[s] back the retrieved at least one media item.” A person of skill in the art would understand that a playback device plays content for a media item, such that “retriev[ing] at least one media item” refers to retrieving the content.

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130. I also showed above that although the specification does not provide written description for this limitation, it does disclose to a person of skill in the art that a URL which is used to retrieve content for a next media item from the cloud is “data identifying a next one or more media items” that is used to “retrieve at least one media item” from the cloud-based media service. *See supra*, ¶ 104. Here, the “Bandaids URL”—not the song_ids—are the data that is used to retrieve media items in the album playlist or Magic Playlist. And, as I have already explained, the album playlist and Magic Playlist are a “remote playback queue” to the extent Dr. Schmidt’s infringement opinions are credited.

C. Response To Dr. Schmidt’s Reduction To Practice Arguments

131. My opening report identified Google’s date of reduction to practice as June 2012, the date on which a commercial version of the Project Tungsten was distributed at the 2012 Google I/O as Nexus Q. Opening ’033 Rpt., ¶ 460. Dr. Schmidt does not dispute that the Nexus Q distributed at the 2012 Google I/O worked for its intended purpose. Schmidt Rebuttal Rpt., ¶ 575.

132. Dr. Schmidt argues that I did not establish an earlier December 29, 2011 reduction to practice of the Tungsten that worked for its intended purpose, and states that certain source code files that are included in the folder `sonos3_source_code_pull_two/fy-ub-a@h-core/` have copyright dates after December 29, 2011. Schmidt Rebuttal Rpt., ¶¶ 542-543. My opening report discusses the source code files in these folder to show that Google extended the Music 2 application for use with the Tungsten system, but I presented videos and documents (e.g., the NexusQ handbooks) that demonstrate this point and show that the Nexus Q that was commercially released included the functionality relevant to the asserted claims. Moreover, Dr. Schmidt does not raise any issues regarding the date of the July 14, 2011 capture (in the folder `/sonos3_source_code_pull_five`) which included the Music 2 application that was ultimately extended for the Tungsten project (including the album playlist and Magic Playlist functionality that I rely upon). In other words, I

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do not need to rely upon the date of the files in these folders because Google was diligent in reducing the commercial version of the Nexus Q that was distributed at the 2012 Google I/O. Opening '033 Rpt., ¶ 460, 473-479.

133. Dr. Schmidt lists a number of emails and documents that he states show that Google did not conceive of the invention prior to the “assumed-invention date of the ‘033 Patent (December 2011).” Schmidt Rebuttal Rpt., ¶ 566. Dr. Schmidt does not discuss how any of these documents undercut Google’s conception of a particular claim limitation.

134. Initially, a number of these documents pre-date Sonos’s claimed December 2011 priority date. Schmidt Rebuttal Rpt., ¶566 (citing GOOG-SONOS-NDCA-00077334, GOOG-SONOSWDTX-00052500, GOOG-SONOSWDTX-00052506, GOOG-SONOSWDTX-00052508, GOOG-SONOS-NDCA-00077450). These documents support my opinion because they show that prior to December 2011 Google conceived of the Tungsten system extending the Music 2 application’s local playback to (1) include a remote control mode for transferring and controlling playback on a Tungsten playback device, and (2) a device-picker for selecting one or more Tungsten playback devices. Dr. Schmidt does not explain how the implementation details in any of these documents negates conception. For instance, Dr. Schmidt cites to an email thread from October 2011 that he characterizes as “Google still debating GUI for selecting what Tungsten device(s) the control device was to connect to.” Schmidt Rebuttal Rpt., ¶ 566 (GOOG-SONOSWDTX-00052500). But this document confirms that the Tungsten system would include a control device with a device-picker for selecting one or more Tungsten playback devices by this date. GOOG-SONOSWDTX-00052500. Dr. Schmidt has not explained how the discussions regarding the GUI for the device-picker in this email—e.g., “Should tungsten selection be

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invention seems to be inconsistent with his opinion that Google did not have a conception or reduction to practice as of December 29, 2011. Schmidt Rebuttal Rpt., ¶566.

E. Claim 1

1. **Limitation 1.0-1.3: “A computing device comprising: at least one processor; a non-transitory computer-readable medium; and program instructions stored on the non-transitory computer readable medium that, when executed by the at least one processor, cause the computing device to perform functions comprising:”**

137. I understand that Dr. Schmidt does not dispute that the Tungsten/NexusQ prior art satisfies this limitation. I agree with Dr. Schmidt that this limitation is met.

2. **Limitation 1.4: “operating in a first mode in which the computing device is configured for playback of a remote playback queue provided by a cloud-based computing system associated with a cloud-based media service:”**

138. For both the Tungsten/NexusQ system that was demonstrated at the May 2011 Google I/O and the Tungsten/NexusQ system that was demonstrated at the June 2012 Google I/O, Dr. Schmidt argues that this limitation is not met because a cloud-hosted album playlist and Magic Playlist do not disclose the use of a “remote playback queue.” Schmidt Rebuttal Rpt., ¶566. According to Dr. Schmidt, the Tungsten controller has a “local playback queue that was filled with media items from a cloud-hosted album playlist or Magic Playlist. Schmidt Rebuttal Rpt., ¶ 583-588, 601-602. Dr. Schmidt states that the contents of a cloud-hosted playlist and Magic Playlist are not selected for playback until they are added to a computing device’s “local playback queue.” Id. In this respect, Dr. Schmidt appears to be interpreting the term “playback queue” to refer to the data structure on the computing device that stores the contents of the media item. However, for purposes of infringement Dr. Schmidt has interpreted the term “playback queue” broadly to accuse a list of media items provided by a YouTube server rather than the specific data structure that is used to store the content of the media item. *See supra*, ¶ 27. As I have already explained

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above, a cloud-hosted playlist and Magic Playlist are a “remote playback queue” based on Dr. Schmidt’s application of the claims for purposes of infringement. Dr. Schmidt has not identified differences (if any) that are material to the claim language.

139. For the Tungsten/NexusQ system that was commercially released at the June 2012 Google I/O, Dr. Schmidt states that § 102(g) theory is “dependent on the May 2011 Tungsten serving as the requisite conception.” Schmidt Rebuttal Rpt., ¶ 592. Dr. Schmidt repeats this statement of every limitation. But in fact, for conception I relied upon the May 2011 Tungsten as well as other documentation for the Tungsten/NexusQ prior. For example, for Limitation 1.4 I cited documentation showing that Google had conceived of a computing device running the Music2 application (also known as Google Play Music) that was configured to operate in a standalone mode in which it played a cloud-hosted playlists. I also showed this functionality was reduced to practice, as shown in the videos I cited in my report. *See, e.g.*, Opening ’033 Rpt., ¶ 497.

140. Dr. Schmidt also disagrees with my opinion that it would have at least been obvious to modify the Tungsten/NexusQ system that was demonstrated at the May 2011 Google I/O to use a music application that could play cloud-hosted album playlists in a standalone mode, as disclosed in, for instance, the ’557 Provisional. Schmidt Rebuttal Rpt., ¶¶ 614-615. More specifically, Dr. Schmidt claims that a POSITA would not have been motivated to do so because it would have been a “significant undertaking” and “would have fundamentally altered the principles of operation of the May 2011 Tungsten.” *Id.* But Google did in fact make this modification for the June 2012 Google I/O the following year.

3. **Limitation 1.5: “while operating in the first mode, displaying a representation of one or more playback devices in a media playback system that are each i) communicatively coupled to the computing**

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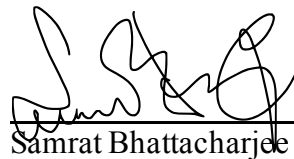
XII. RESERVATION OF RIGHTS

192. In the event I am called upon to testify as an expert witness in this case, I may also discuss my own work, teaching, and publications in the field, and knowledge of the state of the art in the relevant time period. I may rely on handbooks, textbooks, technical literature, my own personal experience in the field, and other relevant materials or information to demonstrate the state of the art in the relevant period and the evolution of relevant technologies. I also reserve the right to rely on demonstrative exhibits to help explain the opinions set forth in this report, including, but not limited to, those attached to my prior reports.

193. I reserve the right to modify or supplement my opinions, as well as the basis for my opinions, in light of new positions set forth by Sonos, to the extent Sonos is permitted to advance those positions. This includes positions concerning the scope and interpretation of the asserted claims, infringement allegations, conception, diligence, and reduction to practice, and secondary considerations.

I, Samrat Bhattacharjee, declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

DATED: January 23, 2023


Samrat Bhattacharjee